

WHAT IS CLAIMED IS:

1 1. A method of graphically depicting a plurality of price adjustments that are applied to a  
2 product set over a predetermined time period, the method comprising:

3 receiving a request for a graphical depiction of said plurality of price adjustments that  
4 are applied to said product set over said predetermined time period;

5 retrieving, in response to said request, transaction data for said plurality of price  
6 adjustments for said product set during said predetermined time period from a database that  
7 stores transaction data for said product;

8 computing, for each price adjustment in said plurality of price adjustments, a  
9 representation of an amount the price of said product set was adjusted in accordance with said  
10 corresponding price adjustment during said predetermined time period using said transaction  
11 data; and

12 graphing each said representation as an element in a graph having a start price point  
13 and an end price point, wherein each said element is placed between said start price point and  
14 said end price point.

1 2. The method of claim 1, wherein said product set comprises a single shopkeeping unit  
2 that uniquely represents a product in a catalog of products.

1 3. The method of claim 1, wherein said product set comprises each product sold to a  
2 particular customer or a particular group of customers during said predetermined time period.

1 4. The method of claim 1, wherein each price adjustment in said plurality of price  
2 adjustments is selected from the group consisting of an order size discount, a promotion  
3 discount, an exception discount, a cash discount, a cooperative advertising discount,  
4 salesperson discretion, a promotional bonus, a product line rebate, an annual volume bonus, a  
5 marketing allowance, and a freight surcharge.

1 5. The method of claim 1, wherein each said representation of said amount the price was  
2 adjusted in accordance with said corresponding price adjustment is a summation of the  
3 amount the price was adjusted by said price adjustment in each transaction for the purchase of  
4 said product set during said predetermined time period.

1 6. The method of claim 1, wherein each said representation of said amount the price was  
2 adjusted in accordance with said corresponding price adjustment is a weighted average of the  
3 amount the price was adjusted by said price adjustment in each transaction for the purchase of  
4 said product set during said predetermined time period.

1 7. The method of claim 1, wherein said graph further includes one or more intermediate  
2 price points and each said element is associated with either an intermediate price point,  
3 selected from among said one or more intermediate price points, or said final price point, and  
4 wherein said element is plotted in the graph before the price point associated with the  
5 element.

1 8. The method of claim 7, wherein an intermediate price point in said one or more  
2 intermediate price points is an invoice price.

1 9. The method of claim 1, wherein a first price adjustment in said plurality of price  
2 adjustments includes a plurality of subcategories and said computing step further comprises  
3 computing, for each subcategory of said first price adjustment, a representation of an amount  
4 the price of said product set was adjusted in accordance with said subcategory of said first  
5 price adjustment during said predetermined time period using said transaction data, the  
6 method further comprising:

7 accepting a selection of the element in said graph that corresponds to said first price  
8 adjustment; and

9 graphing, for each subcategory of said first price adjustment, the representation that  
10 corresponds to said subcategory of said first price adjustment.

1 10. A method for computing the final price one or more products in a price quote, the  
2 method comprising:

3 initializing a price trail with a starting point and an ending point, the ending point  
4 corresponding to a final price or an intermediate price for said product set in said price quote;

5 populating said price trail with a plurality of price changes, wherein each price change  
6 in said plurality of price changes affects a value of the ending point, and wherein a price

change in said plurality of price changes is a compound price change that includes a price change operator, the price change operator performing an operation on one or more predetermined price changes affecting a value of said ending point;

displaying said price trail; and

computing said price trail based on said plurality of price changes.

11. The method of claim 10, wherein said one or more predetermined price changes is a plurality of predetermined price changes and said price change operator takes the maximum, summation, or minimum of said plurality of predetermined price changes.

12. The method of claim 10, wherein said one or more predetermined price changes is a plurality of predetermined price changes and said price change operator allows for user selection between said plurality of predetermined price changes, the method further comprising:

recomputing said price trail based on said plurality of price changes after said user selection.

13. The method of claim 10, wherein said price change operator provides a user directed choice between accepting or rejecting the application of said one or more predetermined price changes, the method further comprising:

recomputing said price trail based on said plurality of price changes after user acceptance or rejection of the application of said one or more predetermined price changes.

14. The method of claim 10, wherein said price change operator provides a prompt that rationalizes the application of said one or more predetermined price changes, the method further comprising:

recomputing said price trail after user acceptance or rejection of the application of said one or more predetermined price changes.

15. The method of claim 10, wherein a price change in said plurality of price changes replaces the value of the starting point of said price trail.

1 16. The method of claim 10, wherein a price change in said plurality of price changes  
2 adds or subtracts a percentage of the starting price value or a fixed amount to the value of the  
3 starting point of said price trail.

1 17. The method of claim 10, wherein a price change in said plurality of price changes  
2 provides a user directed choice to specify a value for the ending point of the price trail, the  
3 method comprising:  
4 recomputing said price trail after user specification of said value for the final price for  
5 said product set in said price quote.

1 18. The method of claim 10, wherein a price change in said plurality of price changes  
2 provides a user directed choice for specifying a discount, and wherein the absolute size of  
3 said discount that is acceptable is determined by a characteristic of the user, the method  
4 comprising:  
5 recomputing said price trail after user specification of said discount.

1 19. The method of claim 10, wherein said product set comprises a single shopkeeping unit  
2 that uniquely represents a product in a catalog of products.

1 20. The method of claim 10, wherein said product set comprises each product sold to a  
2 particular customer or a particular group of customers during said predetermined time period.

1 21. A method for computing a price for a product in a quote, the method comprising:  
2 providing a price form for receiving said quote, the price form comprising a field to  
3 specify said product, a field to specify a quantity of said product, and a field to specify a first  
4 agreement that governs said quote, wherein said agreement includes a customer and an  
5 agreement coverage period; and  
6 computing the price of said product in said quote using a price function that  
7 corresponds to a designated field in said price form, the price function having an input that is  
8 taken from said designated field and an output that is used to compute the price of said  
9 product, wherein said price function determines said output using said input value and a price  
10 table that includes a price adjustment value for said product.

1     22.     The method of claim 21, wherein said price table is a global price table.

1     23.     The method of claim 21, wherein said price table is agreement-specific and a price  
2     adjustment value in said price table is associated with a designated agreement; and  
3             when said designated agreement for said price adjustment value in said price table  
4     does not match said first agreement, said price adjustment value is not used by said price  
5     function to determine said output; and

6             when said designated agreement for said price adjustment value in said price table  
7     matches said first agreement and said price adjustment value is for said product, said price  
8     adjustment value is used by said price function to determine said output.

1     24.     The method of claim 21, wherein each price adjustment value in said price table has a  
2     priority, and when two or more price adjustment values in said price table apply to said  
3     product, the price adjustment value having the highest priority is used by said price function  
4     to determine said price for said product.

1     25.     The method of claim 21, wherein each price adjustment value in said price table is  
2     associated with a product, a collection of products that is dynamically determined, or a  
3     category of products.

1     26.     The method of claim 21, the method further comprising:  
2             initializing a price trail with a starting point and an ending point, the starting point  
3     corresponding to the list price for said product and the ending point corresponding to the final  
4     price for said product in said price quote;  
5             populating said price trail with a plurality of price changes, wherein each node in said  
6     plurality of price changes illustrates a price change sequence that affects the final price of said  
7     product in said price quote; and  
8             displaying said price trail.

1 27. A computer program product for use in conjunction with a computer system, the  
2 computer program product comprising a computer readable storage medium and a computer  
3 program mechanism embedded therein, the computer program mechanism comprising:  
4 a waterfall reporting module for graphically depicting a plurality of price adjustments  
5 that are applied to a product set over a predetermined time period, the waterfall reporting  
6 module including:  
7 instructions for receiving a request for a graphical depiction of said plurality of price  
8 adjustments that are applied to said product set over said predetermined time period;  
9 instructions for retrieving, in response to said request, transaction data for said  
10 plurality of price adjustments for said product set during said predetermined time period from  
11 a waterfall history database that stores transaction data for said product;  
12 instructions for computing, for each price adjustment in said plurality of price  
13 adjustments, a representation of an amount the price of said product set was adjusted in  
14 accordance with said corresponding price adjustment during said predetermined time period  
15 using said transaction data; and  
16 instructions for graphing each said representation as an element in a graph having a  
17 start price point and an end price point, wherein each said element is placed between said  
18 start price point and said end price point.

1 28. The computer program product of claim 27, wherein said product set comprises a  
2 single shopkeeping unit that uniquely represents a product in a catalog of products.

1 29. The computer program product of claim 27, wherein said product set comprises each  
2 product sold to a particular customer or a particular group of customers during said  
3 predetermined time period.

1 30. The computer program product of claim 27, wherein each price adjustment in said  
2 plurality of price adjustments is selected from the group consisting of an order size discount,  
3 a promotion discount, an exception discount, a cash discount, a cooperative advertising  
4 discount, salesperson discretion, a promotional bonus, a product line rebate, an annual  
5 volume bonus, a marketing allowance, and a freight surcharge.

1 31. The computer program product of claim 27, wherein each said representation of said  
2 amount the price was adjusted in accordance with said corresponding price adjustment is a  
3 summation of the amount the price was adjusted by said price adjustment in each transaction  
4 for the purchase of said product set during said predetermined time period.

1 32. The computer program product of claim 27, wherein each said representation of said  
2 amount the price was adjusted in accordance with said corresponding price adjustment is a  
3 weighted average of the amount the price was adjusted by said price adjustment in each  
4 transaction for the purchase of said product set during said predetermined time period.

1 33. The computer program product of claim 27, wherein said graph further includes one  
2 or more intermediate price points and each said element is associated with either an  
3 intermediate price point, selected from among said one or more intermediate price points, or  
4 said final price point, and wherein said element is plotted in the graph before the price point  
5 associated with the element.

1 34. The computer program product of claim 27, wherein an intermediate price point in  
2 said one or more intermediate price points is an invoice price.

1 35. The computer program product of claim 27, wherein a first price adjustment in said  
2 plurality of price adjustments includes a plurality of subcategories and said instructions for  
3 computing further comprise instructions for computing, for each subcategory of said first  
4 price adjustment, a representation of an amount the price of said product set was adjusted in  
5 accordance with said subcategory of said first price adjustment during said predetermined  
6 time period using said transaction data, the waterfall reporting module further comprising:  
7 instructions for accepting a selection of the element in said graph that corresponds to  
8 said first price adjustment; and  
9 instructions for graphing, for each subcategory of said first price adjustment, the  
10 representation that corresponds to said subcategory of said first price adjustment.

1 36. A computer program product for use in conjunction with a computer system, the  
2 computer program product comprising a computer readable storage medium and a computer  
3 program mechanism embedded therein, the computer program mechanism comprising:  
4 a price function, the price function comprising:  
5 instructions for initializing a price trail with a starting point and an ending point, the  
6 ending point corresponding to a final price or intermediate price point for said product set in  
7 said price quote;  
8 instructions for populating said price trail with a plurality of price changes, wherein  
9 each price change in said plurality of price changes affects the value of said ending point, and  
10 wherein a price change in said plurality of price changes is a compound price change that  
11 includes a price change operator, the price change operator performing an operation on one or  
12 more predetermined price changes affecting the value of said ending point;  
13 instructions for displaying said price trail; and  
14 instructions for computing said price trail based on said plurality of price changes.

1 37. The computer program product of claim 36, wherein said one or more predetermined  
2 price change sequences is a plurality of predetermined price change sequences and said price  
3 change operator takes the maximum, summation, or minimum of said plurality of  
4 predetermined price change sequences.

1 38. The computer program product of claim 36, wherein said one or more predetermined  
2 price change sequences is a plurality of predetermined price change sequences and said price  
3 change operator allows for user selection between said plurality of predetermined price  
4 change sequences, the price function further comprising:  
5 instructions for recomputing said price trail based on said plurality of price changes  
6 after user selection between said plurality of predetermined price changes.

1 39. The computer program product of claim 36, wherein said price change operator  
2 provides a user directed choice between accepting or rejecting the application of said one or  
3 more predetermined price change sequences, the price function further comprising:



4 instructions for recomputing said price trail based on said plurality of price changes  
5 after user acceptance or rejection of the application of said one or more predetermined price  
6 changes.

1 40. The computer program product of claim 36, wherein said price change operator  
2 provides a prompt that rationalizes the application of said one or more predetermined price  
3 change sequences, the price function further comprising:

4 instructions for recomputing said price trail after user acceptance or rejection of the  
5 application of said one or more predetermined price change sequences.

1 41. The computer program product of claim 36, wherein a price change in said plurality of  
2 price changes replaces the value of the starting point.

1 42. The computer program product of claim 36, wherein a price change in said plurality of  
2 price changes adds or subtracts a percentage of the starting price value or a fixed amount to  
3 the value of the starting point of the price trail.

1 43. The computer program product of claim 36, wherein a price change in said plurality of  
2 price changes provides a user directed choice to specify a value for the ending point of the  
3 price trail, the price function further comprising:

4 instructions for recomputing said price trail after user specification of said value for  
5 the final price for said product set in said price quote.

1 44. The computer program product of claim 36, wherein a price change in said plurality of  
2 price changes provides a user directed choice for specifying a discount, and wherein the  
3 absolute size of said discount that is acceptable is determined by a characteristic of the user,  
4 the price function further comprising:

5 instructions for recomputing said price trail after user specification of said discount.

1 45. The computer program product of claim 36, wherein said product set comprises a  
2 single shopkeeping unit that uniquely represents a product in a catalog of products.

1 46. The computer program product of claim 36, wherein said product set comprises each  
2 product sold to a particular customer or a particular group of customers during said  
3 predetermined time period.

1 47. A computer program product for use in conjunction with a computer system, the  
2 computer program product comprising a computer readable storage medium and a computer  
3 program mechanism embedded therein, the computer program mechanism comprising:

4 a price engine for computing a price for a product in a quote, the price engine  
5 comprising:

6 a price table that includes a price adjustment value for said product; and

7 a price form for receiving said quote, the price form comprising a field to specify said  
8 product, a field to specify a quantity of said product, and a field to specify a first agreement  
9 that governs said quote, wherein said agreement includes a customer and an agreement  
10 coverage period; and

11 a price function that corresponds to a designated field in said price form, the price  
12 function having an input that is taken from said designated field and an output that is used to  
13 compute said price for said product, the price function including instructions for determining  
14 said output using said input value and a price adjustment in said price table.

1 48. The computer program product of claim 47, wherein said price table is a global price  
2 table.

1 49. The computer program product of claim 47, wherein said price table is agreement-  
2 specific and a price adjustment value in said price table is associated with a designated  
3 agreement; and

4 when said designated agreement for said price adjustment value in said price table  
5 does not match said first agreement, said price adjustment value is not used by said price  
6 function to determine said output; and

7 when said designated agreement for said price adjustment value in said price table  
8 matches said first agreement and said price adjustment value is for said product, said price  
9 adjustment value is used by said price function to determine said output.

1 50. The computer program product of claim 47, wherein each price adjustment value in  
2 said price table has a priority, and when two or more price adjustment values in said price  
3 table apply to said product, the price adjustment value having the highest priority is used by  
4 said price function to determine said price for said product.

1 51. The computer program product of claim 47, wherein each price adjustment value in  
2 said price table is associated with a product, a collection of products that is dynamically  
3 determined, or a category of products.

1 52. The computer program product of claim 47, wherein said a price function further  
2 comprises:  
3 instructions for initializing a price trail with a starting point and an ending point, the  
4 starting point corresponding to the list price for said product and the ending point  
5 corresponding to the final price for said product in said price quote;  
6 instructions for populating said price trail with a plurality of price changes, wherein  
7 each price change in said plurality of price change affects the value of the ending point; and  
8 instructions for displaying said price trail.

1 53. A computer system for graphically depicting a plurality of price adjustments that are  
2 applied to a product set over a predetermined time period, the computer system comprising:  
3 a central processing unit;  
4 a memory, coupled to the central processing unit, the memory storing a waterfall  
5 history database that stores transaction data for said product, and a waterfall reporting  
6 module;  
7 the waterfall reporting module including:  
8 instructions for receiving a request for a graphical depiction of said plurality of price  
9 adjustments that are applied to said product set over said predetermined time period;  
10 instructions for retrieving, in response to said request, transaction data for said  
11 plurality of price adjustments for said product set during said predetermined time period from  
12 said waterfall history database;  
13 instructions for computing, for each price adjustment in said plurality of price  
14 adjustments, a representation of an amount the price of said product set was adjusted in

15 accordance with said corresponding price adjustment during said predetermined time period  
16 using said transaction data; and  
17 instructions for graphing each said representation as an element in a graph having a  
18 start price point and an end price point, wherein each said element is placed between said  
19 start price point and said end price point.

1 54. The computer system of claim 53, wherein said product set comprises a single  
2 shopkeeping unit that uniquely represents a product in a catalog of products.

1 55. The computer system of claim 53, wherein said product set comprises each product  
2 sold to a particular customer or a particular group of customers during said predetermined  
3 time period.

1 56. The computer system of claim 53, wherein each price adjustment in said plurality of  
2 price adjustments is selected from the group consisting of an order size discount, a promotion  
3 discount, an exception discount, a cash discount, a cooperative advertising discount,  
4 salesperson discretion, a promotional bonus, a product line rebate, an annual volume bonus, a  
5 marketing allowance, and a freight surcharge.

1 57. The computer system of claim 53, wherein each said representation of said amount the  
2 price was adjusted in accordance with said corresponding price adjustment is a summation of  
3 the amount the price was adjusted by said price adjustment in each transaction for the  
4 purchase of said product set during said predetermined time period.

1 58. The computer system of claim 53, wherein each said representation of said amount the  
2 price was adjusted in accordance with said corresponding price adjustment is a weighted  
3 average of the amount the price was adjusted by said price adjustment in each transaction for  
4 the purchase of said product set during said predetermined time period.

1 59. The computer system of claim 53, wherein said graph further includes one or more  
2 intermediate price points and each said element is associated with either an intermediate price  
3 point, selected from among said one or more intermediate price points, or said final price

point, and wherein said element is plotted in the graph before the price point associated with the element.

60. The computer system of claim 53, wherein an intermediate price point in said one or more intermediate price points is an invoice price.

61. The computer system of claim 53, wherein a first price adjustment in said plurality of price adjustments includes a plurality of subcategories and said instructions for computing further comprise instructions for computing, for each subcategory of said first price adjustment, a representation of an amount the price of said product set was adjusted in accordance with said subcategory of said first price adjustment during said predetermined time period using said transaction data, the waterfall reporting module further comprising:  
instructions for accepting a selection of the element in said graph that corresponds to said first price adjustment; and  
instructions for graphing, for each subcategory of said first price adjustment, the representation that corresponds to said subcategory of said first price adjustment.

62. A computer system for computing the final price of one or more products in a price quote, the computer system comprising:  
a central processing unit;  
a memory, coupled to the central processing unit, the memory storing a price function and a price trail, the price function comprising:  
instructions for initializing said price trail with a starting point and an ending point, the ending point corresponding to a final price or an intermediate price point for said product set in said price quote;  
instructions for populating said price trail with a plurality of price changes, wherein each price change in said plurality of nodes affects the value of the ending point, and wherein a price change in said plurality of price changes is a compound price change sequence that includes a price change operator, the price changer operator performing an operation on one or more predetermined price changes affecting the ending point of said price trail;  
instructions for displaying said price trail; and  
instructions for computing said price trail based on said plurality of nodes.

1 63. The computer system of claim 62, wherein said one or more predetermined price  
2 changes is a plurality of predetermined price changes and said price change operator takes the  
3 maximum, summation, or minimum of said plurality of predetermined price changes.

1 64. The computer system of claim 62, wherein said one or more predetermined price  
2 change sequences is a plurality of predetermined price changes and said price change operator  
3 allows for user selection between said plurality of predetermined price changes, the price  
4 function further comprising:  
5 instructions for recomputing said price trail based on said plurality of price changes  
6 after user selection between said plurality of predetermined price changes.

1 65. The computer system of claim 62, wherein said price change operator provides a user  
2 directed choice between accepting or rejecting the application of said one or more  
3 predetermined price changes, the price function further comprising:  
4 instructions for recomputing said price trail based on said plurality of price changes  
5 after user acceptance or rejection of the application of said one or more predetermined price  
6 changes.

1 66. The computer system of claim 62, wherein said price change operator provides a  
2 prompt that rationalizes the application of said one or more predetermined price changes, the  
3 price function further comprising:  
4 instructions for recomputing said price trail after user acceptance or rejection of the  
5 application of said one or more predetermined price changes.

1 67. The computer system of claim 62, wherein a node in said plurality of price changes  
2 replaces the value of the starting point.

1 68. The computer system of claim 62, wherein a node in said plurality of price changes  
2 adds or subtracts a percentage of the starting price value or a fixed amount to the value of the  
3 starting point of the price trail.

69. The computer system of claim 62, wherein a node in said plurality of price changes provides a user directed choice to specify a value for the ending point of the price trail, the price function further comprising:

instructions for recomputing said price trail after user specification of said value for the final price for said product set in said price quote.

70. The computer system of claim 62, wherein a price change in said plurality of price changes provides a user directed choice for specifying a discount, and wherein the absolute size of said discount that is acceptable is determined by a characteristic of the user, the price function further comprising:

instructions for recomputing said price trail after user specification of said discount.

71. The computer system of claim 62, wherein said product set comprises a single shopkeeping unit that uniquely represents a product in a catalog of products.

72. The computer system of claim 62, wherein said product set comprises each product sold to a particular customer or a particular group of customers during said predetermined time period.

73. A computer system for computing a price for a product in a quote, the computer system comprising:

a central processing unit;

a memory, coupled to the central processing unit, the memory storing a price engine, and a price table that includes a price adjustment value for said product, the price engine comprising:

a price form for receiving said quote, the price form comprising a field to specify said product, a field to specify a quantity of said product, and a field to specify a first agreement that governs said quote, wherein said agreement includes a customer and an agreement coverage period; and

a price function that corresponds to a designated field in said price form, the price function having an input that is taken from said designated field and an output that is used to

13 compute said price for said product, the price function including instructions for determining  
14 said output using said input value and a price adjustment in said price table.

1 74. The computer system of claim 73, wherein said price table is a global price table.

1 75. The computer system of claim 73, wherein said price table is agreement-specific and a  
2 price adjustment value in said price table is associated with a designated agreement; and  
3 when said designated agreement for said price adjustment value in said price table does not  
4 match said first agreement, said price adjustment value is not used by said price function to  
5 determine said output; and

6 when said designated agreement for said price adjustment value in said price table  
7 matches said first agreement and said price adjustment value is for said product, said price  
8 adjustment value is used by said price function to determine said output.

1 76. The computer system of claim 73, wherein each price adjustment value in said price  
2 table has a priority, and when two or more price adjustment values in said price table apply to  
3 said product, the price adjustment value having the highest priority is used by said price  
4 function to determine said price for said product.

1 77. The computer system of claim 73, wherein each price adjustment value in said price  
2 table is associated with a product, a collection of products that is dynamically determined, or  
3 a category of products.

1 78. The computer system of claim 73, wherein said a price function further comprises:  
2 instructions for initializing a price trail with a starting point and an ending point, the  
3 starting point corresponding to the list price for said product and the ending point  
4 corresponding to the final price for said product in said price quote;  
5 instructions for populating said price trail with a plurality of price changes, wherein  
6 each price change in said plurality of price changes affects the value of the ending point of  
7 said price trail; and  
8 instructions for displaying said price trail.